

**A. Cover Sheet** *(Attach to front of proposal.)*

1. Specify: ☐ agricultural project or ☒ urban project ☒ individual application or ☐ joint application
2. Proposal title concise but descriptive: New Courses for Bilingual Landscape Education Program
3. Principal applicant organization or affiliation: Metropolitan Water District of Southern California
4. Contact name, title: Peter A. Louie, Interim Conservation Manager
5. Mailing address: Post Office Box 54153, Los Angeles, California 90054-0153
6. Telephone: (213) 217-6122
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8. E-mail: [plouie@mwd.dst.ca.us](mailto:plouie@mwd.dst.ca.us)
9. Funds requested dollar amount: \$100,000
10. Applicant cost share funds pledged dollar amount: \$50,000
11. Duration (month/year to month/year): 07/2001 to 08/2002
12. State Assembly and Senate districts and Congressional district(s) where the project is to be conducted:  
See attachment #(1) list of legislators
13. Location and geographic boundaries of the project: See attached #(2) service area map
14. Name and signature of official representing applicant. By signing below, the applicant declares the following: the truthfulness of all representations in the proposal;  
the individual signing the form is authorized to submit the application on behalf of the applicant  
the applicant will comply with contract terms and conditions identified in Section 11 of this PSP.

Stephen N. Arakawa  
*(printed name of applicant)*

February 14, 2001  
*(date)*

*(signature of applicant)*

## **B. Scope of work**

### Abstract

Metropolitan Water District of Southern California (Metropolitan) is working aggressively with its member agencies to improve water use efficiency in many different areas. One important area for improved efficiency is landscape irrigation. In southern California, about half of all urban water use is for landscapes—residential lawns, ground covers around buildings, parks, golf courses and public roadways.

For the last eight years, Metropolitan, with the collaboration of its member agencies, has developed a community-based program known as the Protector del Aqua (PDA) Training Program. PDA offers classes to landscape professionals and homeowners about irrigation systems, landscape designs, and low-water use plants to reduce water use. Thus far, over 350 classes have been offered with more than 5,000 participants in these classes throughout southern California.

The proposed project is to design new classes and also develop video tapes of key classes. The video materials would benefit a much greater number of landscape professionals and homeowners, who otherwise may not be able to find time to attend the classes in person. Even for those who can find time to attend the classes, these instructional materials would be extremely useful as reference materials for them to apply efficient water use methods in their daily practices.

This project is part of Metropolitan's landscape water conservation efforts and is consistent with the implementation of applicable Best Management Practices (BMP)—BMP#5—large landscape conservation programs and incentives.

### Technical Details

The instructional materials are broken up into three different segments, which consist of a number of classes and video taped sessions. Each segment is geared to a specific segment of the audience. Different water conservation techniques will be introduced to both professional and novice landscapers.

Segment 1: This segment will consist of three classes. One is aimed at property managers and the other two are geared to enhance the knowledge of landscape professionals on water conservation issues. All classes will be conducted live and will give the participants hands-on experience in dealing with water conservation problems.

#### *Class 1 – Water Management for Property Managers*

The class is geared toward property managers, who administer a landscape management contract performed by a landscape maintenance company. This class looks at various factors involved in that management, which are vital to good water conservation practices.

- Financial support - Participants will learn the importance of seeking financial support from their clients. This financial support is crucial in securing appropriate improvements for updated or malfunctioning irrigation systems.
- Soil moisture – Participants will learn proper soil moisture needed for plants to grow. It will do this by demonstrating the proper method of interpreting plant symptoms and emphasizing knowledge of the appropriate soil moisture level as a factor in limiting over-irrigation.
- Water management contracts – Participants will learn the importance of effectuating a good water management contract. By teaching the manager about key points in negotiating such contracts, he will be able to set the terms of the agreement to better serve his water conservation needs.
- Water loss – Participants will learn about problems in water loss associated with common irrigation systems. Simple calculations will be used to determine the cost of this water loss and emphasis on how to correct such problems will be addressed.
- Water use analysis – Participants will learn how to analyze landscape water use. This will enable managers to make appropriate changes to their irrigation system and enable them to rectify existing water-wasting problems.
- Water budgeting – Participants will learn how to track weekly landscape water use. This will enable them to construct a water budget. This water budget will give them guidelines to effectuate a good water conservation plan. Weekly tracking allows for immediate adjustments to irrigation systems, which are otherwise over-watering.

### *Class 2 – Basic Water Management*

This class is geared to the landscape professional or maintenance worker. It will introduce the participants to specific skills which will help pinpoint key factors in surveying a landscape site, to determine potential water savings. This class will also focus on how to calculate return on investment of upgrades, which is essential when soliciting funding for repairs from administrators such as property managers. This class will culminate all the elements of the original 6-class Protector del Agua series. Some topics to be covered will be the following:

- Major Water Loss Issues in Landscapes – The participant will be introduced to the most common irrigation system problems that occur in the landscape. Simple calculations and techniques will be introduced to allow the landscaper to analyze the amount of water loss occurring in selected landscape sites.
- Methods for Determining Potential for Savings and Payback – Participants will learn to calculate the return on investment by applying local water pricing to their equation. Once the amount of waste is discovered, participants can correct the problem.
- Water budgeting – This portion of the class will cover important issues associated with water budgets. It will teach the participant how to obtain water use records and how to analyze past water use. It will cover how to estimate the site's water needs based on the horticultural requirement. Finally, the participant will learn how to set

up a method for monitoring the water use on a weekly basis by reading the water meters and comparing the data to past water use and horticultural requirements.

- Case Studies – The class will allow the participant to examine real world examples of water budgeting. The participant will then apply newly learned techniques and calculations necessary to determine the potential water savings. This can be accomplished by performing upgrades and calculating the horticultural water budget.

### *Class 3 - Basic Hydraulics and Design Principles*

This class is geared at the landscape professional. It discusses the underpinning problems and causes of low water pressure with an irrigation system. The significance of the proper water pressure is stressed and economically feasible remedies are discussed and analyzed. The participant will also be introduced to the principles of hydraulics, with an emphasis on system design, common hydraulic problems and their potential remedies. Topics to be covered include the following:

- Basic Principles of Pressure and Friction Loss – Participants will learn the sources of water pressure and how to measure it. The participants will also discuss the process of pressure dropping as water flows through pipes and sprinklers due to friction. Participants will analyze and discuss charts and data, which examine water pressure loss as it is associated with flow and pipe size.
- Proper Pipe Sizing – Participants will use sprinkler flow data available to select proper pipe size. They will learn that pipes of an improper size may cause pressure problems.
- Sprinkler Selection – The participant will learn of the importance of proper sprinkler selection according to the size of the site to be irrigated. Drip irrigation options are also discussed and the appropriate occasion to use a particular type or emitter.
- Sprinkler Placement – This part of the class focuses on proper spacing patterns for sprinklers to produce the most efficient irrigation system.
- Zoning – Participants will learn zoning, or the area each valve waters. The class will discuss the importance of the proper zoning of areas. Participants will learn and discuss the problems of improper zoning of irrigated areas, which may lead to over-watering.

Segment 2: This segment will consist of a series of videotaped sessions geared toward professional landscapers.

This videotaped portion of the project will focus on the original Proector del Agua series. The Protector del Agua series has been in effect for approximately 8 years. This program teaches landscape maintenance professionals, in English or Spanish, water conservation

techniques. Protector del Agua contains 8 classes and consists of slide presentations, hands-on exercises and lectures. This grant is sought to enhance this existing program, including videotaping the series of classes and to make it available to those who can't attend the classes in person. The following video sessions will be covered in this segment:

- Basic Irrigation Principles – A comprehensive workshop addressing the principle factors in landscape irrigation. Concepts presented here are the foundation to sound landscape water management. Topics include plant water needs, soil characteristics, and types of irrigation.
- Irrigation System and Adjustment & Repair – The audience here will learn the importance of regularly adjusting irrigation system problems. Principles introduced will also emphasize the negative impact of poorly adjusted irrigation systems on water use, plant health, irrigation uniformity, and damage to surrounding property.
- Irrigation System Troubleshooting – This session focuses on the analytical approach to solving irrigation system failures. Three areas of potential problems are examined: mechanical, hydraulic, and electrical. The audience will receive practical training in the use of electrical troubleshooting equipment.
- Basic Controller Programming – The session focuses on introducing the audience to basic programming features, which are found in most common controllers. For demonstration purposes, a Rainbird IC, and an Irritrol MC Plus irrigation controller are used.
- Advanced Controller Programming – Building on the features and principles learned in Basic Controller Programming, the audience will be introduced to advanced controller features. The session will cover the usual factors associated with good programming techniques. It will implement schedules, which take into consideration temperature/seasonal changes, rain and landscape activities or demands, which limit irrigation times.
- Irrigation Scheduling – This session focuses on two critical questions. When do you irrigate? and how much water do you apply? A variety of field techniques and methods are presented, as well as technical aspects, which should be considered while scheduling irrigation. The audience will be taken through an irrigation plan, which can later be tailored to their own irrigation needs.
- Plant Identification Part 1 – This session focuses on conserving water through proper selection of landscape plants. Highlights of this class include a slide presentation, plant identification exercise, a plant walk, and a hydrozone exercise. Hands-on activities help the participants better understand plant water use, the concept of microclimates, and Xeriscape design.

- Plant Identification Part 2 – Part two continues with the same concepts learned in the first class. A total of 50 plants are discussed in both parts of this Plant Identification class. Topics also addressed are plant transpiration and plant water irrigation scheduling.

Segment 3: This segment will consist of a series of videotaped sessions geared toward the homeowner. The residential portion of our Protector del Agua program has been in existence for approximately two years. This residential portion enables a novice gardener to learn about the basics of irrigating their landscapes. Each class in this series addresses specific problems a homeowner would encounter while selecting and maintaining their own irrigation system and landscape. The main theme of these classes is to give a novice basic information about their irrigation and plant needs. Charts, slides and demonstrations are used to accomplish this task. The classes consist of slide presentations, hands-on exercises and lectures. This grant is sought to videotape these classes to make them accessible to those participants who can't attend any of the scheduled classes.

- Residential Workshop I: Landscape Sprinkler Systems – This class begins with an introduction to California's water supply and the importance of water conservation. The class continues with a focus on major design and maintenance principles of both overhead sprinklers and drip irrigation.
- Residential Workshop II: Maintaining, Watering, and Fertilizing Landscapes – This class follows up Workshop I and discusses several topics, including but not limited to, soil and plant relationships, appropriate water amounts and scheduling, irrigation clock programming and the appropriate use of fertilizers.
- Residential Workshop III: Basic Landscape Design – The audience will trace the steps of a landscape architect and create a plan for their landscape. This class gives the audience plenty of ideas on how to organize their resources to develop a landscape plan that works best for them. The class covers landscape as part of the living space, incorporating hardscape into your plan, while making appropriate plant selection to meet basic water conservation goals.
- Residential Workshop IV: Plant Class – This plant identification and plant class use class covers 25 commonly used and easily accessible plants appropriate to outdoor home use. The plants have been carefully selected for their minimal water use requirement, while adhering to the needs of homeowners to add color and texture to their landscape. The class is normally taken in conjunction with the design class to give the homeowner a good level of knowledge to effectuate a good water conservation plan.

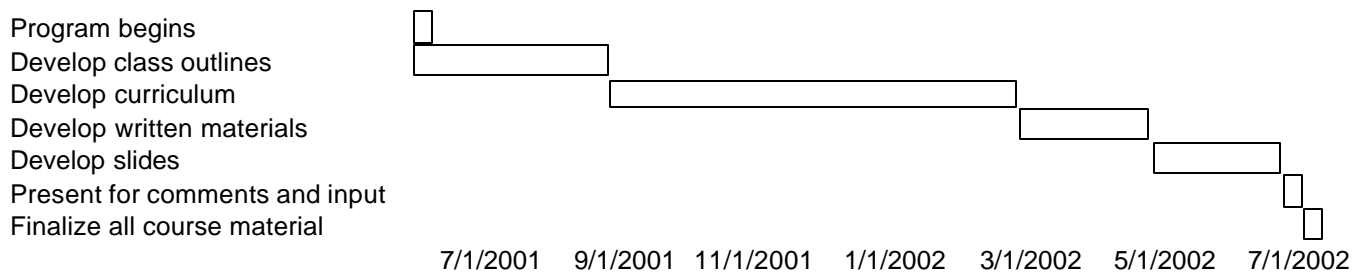
### Methods and procedures

Metropolitan manages PDA and offers it through all of its member agencies. These additional classes would become available to agencies to add on to their existing courses. The video tapes can be used to broaden the range of people who can learn about landscape water conservation. The new courses would be developed following the format of the existing courses, which include slides, course materials, and hands-on exercises. The video would be made available for local access cable and for agencies to use as needed to reach people who may not be able to attend classes.

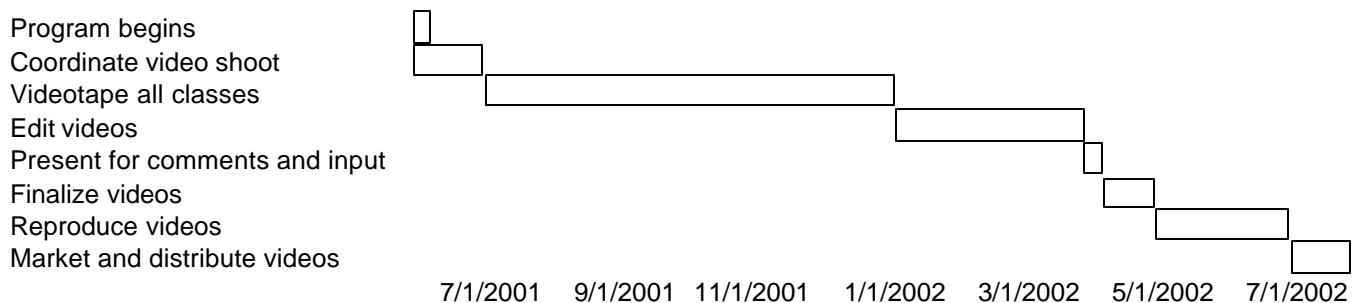
Participants will learn water conservation methods through a series of slides, exercises and real-life examples. With the help of open class discussion and the instructor's assistance, the participants will be able to construct various water conserving scenarios. This knowledge can then be used in their home or work to reduce water use outdoors.

### Schedule

#### Segment 1: Three new classes



#### Segment 2 and 3: Protector del Agua and Protector del Agua: Residential Video



### Monitoring and assessment

Quantifiable water savings are difficult to measure when dealing with education which focuses on behavioral changes. The goal of this project is to promote water awareness through classes and electronic medium.



Monitoring of course and video development will be done, with input at all critical points to ensure the new courses follow the same general format of other PDA courses. Any assessment would have to be done through surveys conducted after the participants have been given the time to absorb the material and apply it to their landscape. While not necessarily quantifiable, this feedback can help determine the effectiveness of PDA in changing behaviors in order to conserve more water.

### **C. Outreach, Community Involvement, and Information Transfer**

#### Outreach Efforts

By the nature of this program, it is primarily an outreach program. Metropolitan works with its member agencies to promote PDA to the general public through advertisements, flyers, brochures, and billing inserts. Many public agencies in California have participated in the program and have helped promote it in their area, including the California Department of Transportation, Los Angeles Unified School District, Los Angeles County Department of Education, California Conservation Corp, The United States Navy, and the San Diego School District.

Having the video tapes and other instructional materials available will help reach an even broader group of people. This video can be used on local access cable to educate many consumers who might not attend classes in person.

PDA for landscapers is taught in English or Spanish. With such a high ratio of monolingual Spanish-speaking landscapers in the industry, it is vital that this program continues to grow. This is important not only for the benefit of a community, who, at some industry estimates, make up more than 60% of the entire landscape workforce, but for the benefit of everyone who is directly or indirectly tied into water conservation in southern California.

#### Information dissemination

PDA is offered throughout Metropolitan's service area. Promotion of courses is done through its 26 member agencies. The video taping of PDA will allow the information it offers to be transferred to a much wider audience. The video can be used by member agencies to reach individuals or groups and can also be used on local cable access. Metropolitan and some agencies also provide information about PDA on their agencies' websites.

#### Cooperating Agencies

Metropolitan already offers PDA through all of its member agencies.

### **D. Qualification of the Applicants, Cooperators, and Establishment of Partnership**

Program Manager resume is attached (Attachment 1). Metropolitan currently has six instructors for PDA in order to cover the entire service area. These instructors have

extensive experience in the landscape industry and in teaching the courses. Their knowledge and experience will be used in development of all materials.

## E. Costs and Benefits

### Budget summary and breakdown.

<b>Costs</b>	<b>Cost per Unit</b>	<b>Estimated # of Units</b>	<b>Total Costs</b>	<b>Met Share</b>	<b>CALFED Share</b>
Salaries and wages	\$50,000	----	\$50,000	\$50,000	----
Fringe Benefits					
Supplies	\$5,000	3 classes	\$15,000		\$15,000
Equipment	\$5,000	3 classes	\$15,000		\$15,000
Services or consultants (1)	\$7,500	3 classes	\$22,500		\$22,500
Services or consultants (2)	\$47,500	----	\$47,500		\$47,500
Travel					
Other Direct Costs					
<b>Total Costs</b>			\$150,000	\$50,000	\$100,000

### Budget justification

Classes will be developed, including slide presentations and exercises. Supplies will be the slides. Equipment will be charts and handouts that will be used to help introduce participants to water saving techniques. The costs of \$95,000 would be for development and taping of the cable access programs as well as other enhancements to make the Protector del Agua Training Program accessible to a much larger audience.

### Benefit summary and breakdown

The "Protector del Agua" Training Program is an education program, with no quantified water savings. However, the behavior changes effected by this program are believed to cause more efficient water use. The expansion included in this proposal should more than double the number of people who are reached with information on how to conserve water in their landscapes. This Program also provides outreach to the community, including the Spanish-speaking community.

The expanded number of people reached through this project will increase water savings in both the residential and commercial sectors. This project fulfills the training, including multi-lingual training, portion of BMP#5, as well as the requirement to provide information to new or change of service accounts on landscape design, management, and equipment.